

without absorption, which indicates that the light-producing mechanism is quite different from what it is in flames.—Analysis of oscillating jar discharges by means of the Braun tube, by F. Richarz and W. Ziegler. The authors note a curious appearance produced in a Braun kathode-ray tube when the fluorescent screen is moved in a direction at right angles to the oscillation of the beam influenced by the discharge. It is a kind of herring-bone structure, in which the slanting ribs are produced by the apparent coalescence of the points of reversal, where the track is brightest and the motion slowest.—A mixture of three powders for producing electric dust figures, by K. Bürker. A mixture far superior to the ordinary minium-sulphur combination may be obtained by mixing five volumes of flowers of sulphur with one volume of powdered carmine and three volumes of lycopodium seed. The colours are reversed with respect to the ordinary mixture.—Effect of ultra-violet light upon gaseous bodies, by P. Lenard. The author proves that not only kathode and Becquerel rays are able to make air electrically conducting, produce nuclei of condensation in it, and convert part of it into ozone, but the same effects are produced, though only to a slight extent, by the extreme ultra-violet rays. The source of light used was the electric spark, but the arc light, and even sunlight, contain some rays effective in this respect.—Quincke's rotations in the electric field, by L. Graetz. Instead of suspending spheres of the dielectrics by threads, the author mounts them in the electrolyte on points, so that they have freedom of rotation. The speed of rotation, when it becomes constant, gives a measure of the conductivity of the dielectric. This mode of measurement may be applied to measuring the conductivity of air ionised by Röntgen rays.—Electrolytic interruptor for feeble currents, by A. von Rzewuski. If the pressure of the acid upon the anode is increased, the current is interrupted at feeble E.M.F.'s. This is done by either making a current of acid flow against the anode, or by suspending the reservoir of the acid some distance above the anode and connecting it by a tube.

In *Synon's Monthly Meteorological Magazine* for April, Mr. A. B. MacDowall draws attention to a curious fact about London summers. Since 1841, the mean temperature of the summer months (June–August) at Greenwich has fluctuated between the extremes  $57^{\circ}4$  and  $65^{\circ}1$ . If we select all the summers reaching or exceeding  $63^{\circ}$ , and all those reaching or falling below  $60^{\circ}$ , it will be observed that the hottest summers are nearly all in years ending with the figures 5 to 9, and that the coolest summers are mostly in years ending with 0 to 4. It would appear, therefore, that the earlier summers in a decade tend to be cooler, and the later summers hotter. The data previous to 1841 are not so trustworthy, but if we take Dr. Buchan's figures as the most dependable, it might be shown that as far back as 1810, at least, the same contrast is indicated. The author of the paper would be glad of any explanation of the cause of this feature in our summer weather.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Chemical Society**, March 29.—Annual General Meeting.—Prof. Thorpe, President, in the chair.—After the delivery of the presidential address, a ballot was held for the election of officers and council for the ensuing year.—At an extra meeting held in the evening, Sir H. E. Roscoe, Vice-President, delivered the Bunsen Memorial Lecture.—April 5.—Prof. J. M. Thomson, Vice-President, in the chair.—The following papers were read:—The liquefaction of a gas by "self-cooling" (a lecture experiment), by G. S. Newth. The author exhibits the liquefaction of nitrous oxide by rapidly passing the gas from the slightly-warmed storage cylinder through a fine copper tube spiral inserted in a vacuum-jacketed test-tube.—Note on partially miscible aqueous inorganic solutions, by G. S. Newth.—The decomposition of chlorates. Part ii. Lead chlorate, by W. H. Sodeau. The slow decomposition of lead chlorate by heat consists of the two independent reactions: (1)  $\text{Pb}(\text{ClO}_3)_2 = \text{PbCl}_2 + 3\text{O}_2$ , and (2)  $\text{Pb}(\text{ClO}_3)_2 = \text{PbO}_2 + \text{Cl}_2 + 2\text{O}_2$ . The reaction  $\text{PbO}_2 + \text{Cl}_2 = \text{PbCl}_2 + \text{O}_2$  simultaneously proceeds to a greater or less extent.—The bromination of benzeneazophenol, by J. T. Hewitt and W. G. Aston.—A new glucoside from willow-bark,

by H. A. D. Jowett. The author has isolated, from the bark of a species of *Salix*, the glucoside of methoxybenzaldehyde and gives to it the name salinigrin.—Alkylation by means of dry silver oxide and alkyl iodides, by G. D. Lander. Dry silver oxide and ethyl iodide react with acetanilide yielding ethyl *z*-acetanilide,  $\text{C}_6\text{H}_5\text{N}:\text{C}(\text{OEt})\text{Me}$ .—The interaction of mesityl oxide and ethyl sodiomethylmalonate, by A. W. Crossley. By the condensation of mesityl oxide with ethyl sodiomethylmalonate, ethyl trimethyldihydroresorcylic acid,  $\text{C}_{12}\text{H}_{18}\text{O}_4$ , is obtained; on hydrolysis it yields trimethyldihydroresorcinol,



—The products of the action of fused potash on dihydroxystearic acid, by H. R. Le Sueur.

**Entomological Society**, April 4.—Mr. G. H. Verrall, President, in the chair.—Mr. M. Jacoby exhibited specimens of the genus *Sagra* from Eastern Asia.—Mr. M. Burr exhibited three species of *Pseudophyllidae*, two new species of *Capnoptera* (females), and *Capnoptera quadrimaculata*, Westw. (female), collected in the Siamese Malay States by Mr. N. Annandale. The specimens illustrated the peculiar methods of protection adopted by the insect when alarmed.—Mr. H. J. Elwes communicated a paper on "Bulgarian Lepidoptera," and made some remarks on the more notable species which he had taken in the Balkan Peninsula during the months of June and July 1899. The number of species of *Rhopalocera* captured was 120, which, with a further 20 recorded by Haberhauer and Lederer, brings up the total to 140. The mountains visited were an extension of the Rhodope range where the climate was particularly rainy, a great number of ferns flourishing everywhere, in contrast to the drier Balkans, where the number of species of *Rhopalocera* is not less than 200. Some interesting forms but no new species were encountered. A variety of *Colias myrmidone* occurred much larger and brighter than the Austrian, and more nearly agreeing with the Ural, form. The form of *Coenonympha datus* met with showed an affinity with the Asiatic and not the European form. The form of *Argynnis pales* was intermediate between that found in Greece and the central European Alps, while a form of *Erebria*, var. *gorgone*, was taken similar to that in the Pyrenees—a curious instance of interrupted distribution.

**Linnean Society**, April 5.—Mr. C. B. Clarke, F.R.S., Vice-President, in the chair.—Mr. W. B. Hemsley, F.R.S., exhibited and made remarks on a selection of plants collected by Dr. A. Henry and Mr. W. Hancock in the neighbourhood of Mengtze and Szemao in Western China.—Dr. D. H. Scott, F.R.S., read a paper "on *Sphenophyllum* and its allies, an extinct division of the vascular cryptogams." The author explained that his purpose was not to communicate any new observations, but to give a summary of our present knowledge of the group and to discuss its affinities. He pointed out that the study of the Palaeozoic Flora not only greatly widens our conception of the three existing classes of Pteridophyta, but adds a fourth—that of the Sphenophyllales—to their number. The various views which have been held as to affinities of the Sphenophyllales were discussed in the light of the results recently attained. The supposed relation to Hydropteridae, though supported by some ingenious arguments, was rejected as baseless, and as inconsistent with the manifest Filicinean affinities of that family. The author came to the conclusion that the Sphenophyllales were most naturally regarded as the derivatives of a synthetic group, combining the characters of Lycopods and Equisetales, and indicating the common origin of these two classes.

### PARIS.

**Academy of Sciences**, April 17.—M. Maurice Lévy in the chair.—On the heat of combustion of some very volatile liquids, by MM. Berthelot and Delcambre. The method for burning volatile liquids in the calorimetric bomb previously described by the authors involves the use of collodion films, and as collodion is not infrequently dissolved by the vapours of the liquid under examination, a new method has now been devised. The liquid is sealed up in a thin glass bulb, which it completely fills, and this bulb is burst in the bomb by a small piece of camphor, the weight and heat of combustion of which are exactly known. Determinations are given for aldehyde, methylal, methyl formate, ethyl formate, propaldehyde and isopropaldehyde.

hyde.—A rotating contact breaker, and some arrangements for producing powerful high frequency currents, by M. d'Arsonval. A description of the apparatus used in the decoration of the front of the electricity section at the Paris Exhibition. The condenser was of a special type, micanite plate immersed in petroleum being used; glass, ebonite, celluloid and paraffined paper were all found to be rapidly destroyed by the currents in use. A new device for breaking the circuit by blowing out an arc is also described.—On the *Stigmaria*, by M. Grand'Eury. The observations of the author are opposed to the view that the *Stigmaria* are the roots of *Sigillaria*, a study of over one hundred specimens showing distinct differences between the two kinds of roots. The true *Stigmaria*, although frequently found together with the roots of *Sigillaria*, appear to have lived generally in much deeper waters.—Influence of periodic perturbations of semi-major axis upon the value of the mean motion deduced from the observations of a planet, and on the corresponding correction of the value originally adopted for the semi-major axis, by M. A. Gaillot.—On a simplified formula for calculating astronomical refractions, by M. L. Cruls.—On series of rational fractions, by M. Émile Borel.—On the characteristics of partial differential equations and the principle of Huygens, by M. J. Coulon.—Vortex motions with cellular structure. Optical study of the free surface, by M. Henri Bénard.—The increases of resistance in radio-conductors, by M. Édouard Branly. The usual effect observed in receivers for the Hertzian waves is a decrease of resistance. In certain cases, however, the opposite is the case, and the experimental results for a tube containing lead peroxide are given.—Induction and electrostatic oscillations, by M. P. de Heen.—Remarks on a recent note of M. G. le Bon, by M. P. Curie. The property of losing its luminosity possessed by a radiferous barium chloride, recently made the subject of a communication by M. le Bon, has been previously published by several authors.—A new microchemical reaction of palladium, by MM. M. E. Pozzi-Escot and H. C. Conquet. Potassium nitrite and excess of a caustic alkali give characteristic crystals with a solution of a palladium salt.—Experimental researches on the physiological phenomena accompanying chlorosis in the vine, by M. Georges Curtel. Chlorosis is accompanied in the diseased leaf with a marked decrease in the respiratory activity and diminution of the ratio CO<sub>2</sub>:O<sub>2</sub>, by a diminution or cessation of assimilation, and by a great decrease in the transpiratory function.—On a *Selaginella* from the coal-measures of Blanzky, by M. R. Zeiller.—Sub-divisions of the Senonian in Portugal, by M. Paul Choffat.—On the production of calcium carbide, by M. L. K. Böhn.

DIARY OF SOCIETIES.

THURSDAY, APRIL 26.

ROYAL INSTITUTION, at 3.—A Century of Chemistry in the Royal Institution: Prof. J. Dewar, F.R.S.  
 INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Electric Transmission of Power: Prof. George Forbes, F.R.S.  
 INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Road Locomotion: Prof. Hele-Shaw, F.R.S.

FRIDAY, APRIL 27.

ROYAL INSTITUTION, at 9.—Nineteenth Century Clouds over the Dynamical Theory of Heat and Light: Lord Kelvin, G.C.V.O., F.R.S.  
 PHYSICAL SOCIETY (Solar Physics Observatory, Exhibition Road, South Kensington), at 8.—A short account of the Physical Problems now being investigated at the Solar Physics Observatory, and their Astronomical Applications: Sir Norman Lockyer, K.C.B., F.R.S.—Weather permitting, the 36-inch, 10-inch, and 9-inch telescopes will be used for the observation and photography of celestial objects and their spectra. The Apper-Spittswoode coil and 21-ft. Rowland grating will also be in operation.

SATURDAY, APRIL 28.

ROYAL INSTITUTION, at 3.—Egypt in the Middle Ages: Prof. Stanley Lane-Poole.

MONDAY, APRIL 30.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Through Africa from the Cape to Cairo: Ewart S. Grogan.  
 INSTITUTE OF ACTUARIES, at 5.30.—Census-Taking: Dr. Reginald Dudfield.

TUESDAY, MAY 1.

ROYAL INSTITUTION, at 3.—Studies in British Geography: Dr. H. R. Mill.

WEDNESDAY, MAY 2.

ENTOMOLOGICAL SOCIETY, at 8.  
 SOCIETY OF PUBLIC ANALYSTS, at 8.

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THURSDAY, MAY 3.

ROYAL INSTITUTION, at 3.—A Century of Chemistry at the Royal Institution: Prof. J. Dewar, F.R.S.  
 LINNEAN SOCIETY, at 8.—Note on the Movements in Fishes: Prof. R. J. Anderson.—On New Species of *Halimeda*, from Funafuti: Miss E. S. Barton.—On West Indian Fungi: Miss A. L. Smith.  
 CHEMICAL SOCIETY, at 8.—Brazilin, Part IV.: A. W. Gilbody, W. H. Perkin, jun., and J. Yates.—Hæmatoxylin, Part V.: W. H. Perkin, jun., and J. Yates.—The Substituted Nitrogen Chlorides and Bromides derived from *o*- and *p*-acet-toluide and their Relation to the Substitution of Halogens in Toluides and Toluidines: F. D. Chattaway and K. R. P. Orton.  
 RÖNTGEN SOCIETY, at 8.—Demonstration and Exhibition of New Methods and Results.  
 INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—If the discussion on Prof. Forbes's Paper, read on April 26, is concluded, the following Paper will be read:—The Calculations of Distributing Systems of Electric Traction under British Conditions: H. M. Sayers.

FRIDAY, MAY 4.

ROYAL INSTITUTION, at 9.—Pottery and Plumbism: Prof. T. E. Thorpe, F.R.S.  
 COLD STORAGE AND ICE ASSOCIATION (Examination Hall, Victoria Embankment), at 11.30.—Recent Researches in Refrigeration: G. Halliday.—Insulation and Insulators: W. D. A. Bost.—At 3.—Electric Lighting of Cold Stores: W. B. Essen.—The Design and Construction of Buildings for Ice Factories and Cold Storage: P. Gaskell.

SATURDAY, MAY 5.

ROYAL INSTITUTION, at 3.—Egypt in the Middle Ages: Prof. Stanley Lane-Poole.

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